

# Position Offered: POSTDOCTORAL RESEARCHER

Project: *SecondBody: Neuroscience-inspired AI for personalized control of wearable robots*

**Technological and scientific fields:** Artificial intelligence, wearable robots, digital twins, sensorization, reinforcement learning

**Location:** Alcalá de Henares, Madrid, Cajal International Neuroscience Center (CINC), <https://www.cinc.csic.es/>

**Research Group/PI:** Neuro AI and Robotics (NAIR) ([neuro-ai-robotics.github.io](https://neuro-ai-robotics.github.io)) / Pablo Lanillos

## PROJECT SUMMARY

Mobility problems are the common denominator of many diseases, neurological causes, and musculoskeletal conditions that affect hundreds of thousands of citizens each year. Being able to assist the mobility of these people is central to society and the healthcare system. The main goal of this project is the development of a new generation of intelligent and customizable Wearable Robots (WRs) to assist users with mobility problems in their day-to-day lives. To achieve this, a neuro-inspired Artificial Intelligence (AI) will be developed for the perception and control of WRs, based on deep reinforcement learning. It will be trained on different mobility pathologies and users modeled with musculoskeletal digital twins. These algorithms will be implemented in sensorized exoskeletons, adapted for safe use in real environments. The selected candidate will join a young, highly active, interdisciplinary research group in the fields of AI, robotics, and neuroscience.

## PROFESSIONAL PROFILE

### Minimum requirements:

Required academic qualifications:

- PhD in Engineering Sciences, Computer Science, or a related field

Language proficiency: Professional English and Spanish

Postdoctoral experience of at least 2 years in wearable robotics

### Merits to be considered:

Experience in musculoskeletal model development and biomechanical gait analysis

Experience with advanced sensors for robotic exoskeletons

Knowledge of reinforcement learning

Knowledge of programming in Python and deep learning libraries

Experience supervising undergraduate and master's students

## WHAT IS OFFERED

Use of advanced robotic technologies for mobility assistance

Training in digital AI skills for robotics (e.g., reinforcement learning)

International training stays in academia and business

Collaboration with other national and international research centers

Continuous training for the advancement of the scientific career

### Contract conditions:

Indefinite contract for a Postdoctoral Researcher associated to the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (41.000 € - 52.000 €).

**Start of contract: before 31 December 2024**

## PRINCIPAL INVESTIGATOR CONTACT

Email: [p.lanillos@csic.es](mailto:p.lanillos@csic.es)

Phone: Twitter: @PLanillos

[momentum@csic.es](mailto:momentum@csic.es) | <https://momentum.csic.es/>



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